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PHOTOGRAPHIC INTERPRETATION REPORT



SELECTED TTMTC NEAR-RANGE TRACKING FACILITIES USSR

OCTOBER 1967

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PHOTOGRAPHIC INTERPRETATION REPORT

SELECTED TTMTC NEAR-RANGE TRACKING FACILITIES **USSR**

OCTOBER 1967

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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FIGURE 1. LOCATION OF TTMTC NEAR-RANGE TRACKING FACILITIES.

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INTRODUCTION

In response to CIA requirement C-DS6-83, 545, 6 near-range tracking facilities at the Tyuratam Missile Test Center (TTMTC) are analyzed in this report (Figure 1). Table 1 is included to clarify the locations and designations of the facilities described and presents the current NPIC designators, former designators, coordinates, distance and bearing to the TTMTC Launch Complex A, and WAC, BE, and NPIC numbers of each facility described in this report.

The near-range tracking facilities at the TTMTC have numerous similarities. In each facility, the instrumentation section is on the side of the facility nearest to the line of flight of the launch vehicles. Each main control building is of the same general size and is constructed parallel to the mean azimuth of the line of flight. All of these control buildings have probable antenna positions on their roofs. In all of these cases, these antenna positions are on the end of the roofs nearest to the Radar A environmental dome. The Radar A environmental dome at all of the facilities is slightly offset from the line of the main control building. In 5 of the 6 facilities, the instrumentation sections contain similar support buildings which have the same position in relation to the main control building (Figures 3, item 6; Figure 7, item 4; Figure 9, item 3; Figure 11, item 7; and Figure 13, item 2). Within the instrumenta-

tion section of the sixth facility there is a similar support building, but its orientation in relation to the main control building is different (Figure 5, item 5). Also within the instrumentation sections of TT1 and TT3 there is an additional instrumentation building. These buildings have the same physical characteristics and orientation in relation to the range. Facilities at TT3, TT4, TT5, and TT6 each have a Type I interferometer. The interferometer sites opposite each other along the line of flight, i.e., TT3 and TT4, TT5 and TT6, have the same orientation with their legs perpendicular and parallel to the line of flight. Other similarities include the presence of a remote communications area near each facility, and the same type of main administration building within each facility.

The facilities are arranged in pairs opposite each other along the line of flight. Facilities TT1 and TT2 both have 2 Radar A environmental domes and the other 4 facilities each have 1 Radar A environmental dome and 1 interferometer.

Because of the similar features in the operational sections of these 6 facilites, it is concluded they have the same basic function, i.e., tracking and telemetry collection from a launch vehicle through its initial phases of flight.

All mensurations included in this report have been provided by the NPIC Technical Intelligence Division.

Table 1. Designation and Location of TTMTC Near-Range Tracking Facilities

Facility	Previous	Coordinates	WAC	BE	NPIC	Distance and Bearing to	
Designation	Designations		Number	Number	Number	TTMTC Launch Complex A	
TT1 TT2 TT3 TT4 TT5 TT6	T02, C07B T03, C07C T04, C08B T05, C08C T06, C09B C12E (T07, C09C)	46-55N 063-25E 46-17N 064-52E 50-14N 065-10E 48-10N 068-33E 51-54N 067-20E 50-17N 071-45E			6-A 6-B 14 16-C 18 45	25X1I	

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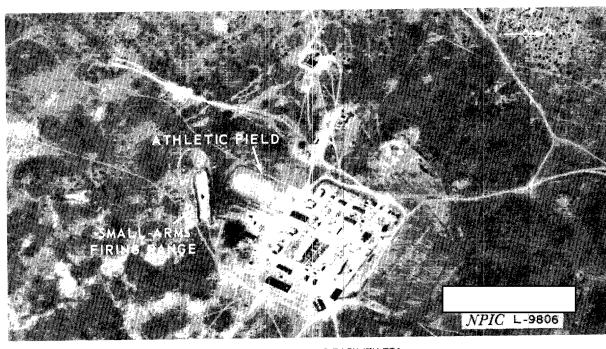


FIGURE 2. TRACKING FACILITY TT1.

TTMTC TRACKING FACILITY TT1

This facility consists of a secured area which contains an instrumentation section, an administration section, a housing and support section, and a separately secured motor pool (Figures 2 and 3). A remote communications area is approximately 1,000 feet west of the secured area. The item numbers of the components of the facility are keyed to Figure 3.

The instrumentation section includes 2 Radar A environmental domes each approximately 20 feet in diameter (items 3b and 4b) with a small adjoining building, and a flat-roofed instrumentation building with 5 tracking and/or telemetry antenna positions in a line along the roof (item 1). The actual configuration of these antenna positions cannot be determined from available photography. However, this building was placed at an angle so the tracking/telemetry antennas on the roof face the rangehead and do not obscure each other when acquiring missiles at low angles of elevation. A large control building (item 5) with a probable antenna position on its north end and 2 medium size support buildings are associated with the instrumentation section.

Other important buildings within the facility include a maintenance building inside the motor pool (item 30), the main administration building (item 12), and the heating and power plant (item 7). The heating and power plant and 2 associated buildings appear to be outside the main security fence. Sixteen buildings including two earth-mounded buildings (item 20 and 21) are inside the secured area, but their function is not identifiable on available photography. The 2 earth-mounded buildings do not appear to be directly associated with the instrumentation function of the facility. These 14 other buildings probably serve the housing, support, storage, and maintenance functions of the facility.

The remote communications area consists of 1 building (item 33) and 6 probable vans. An antenna configuration cannot be identified on

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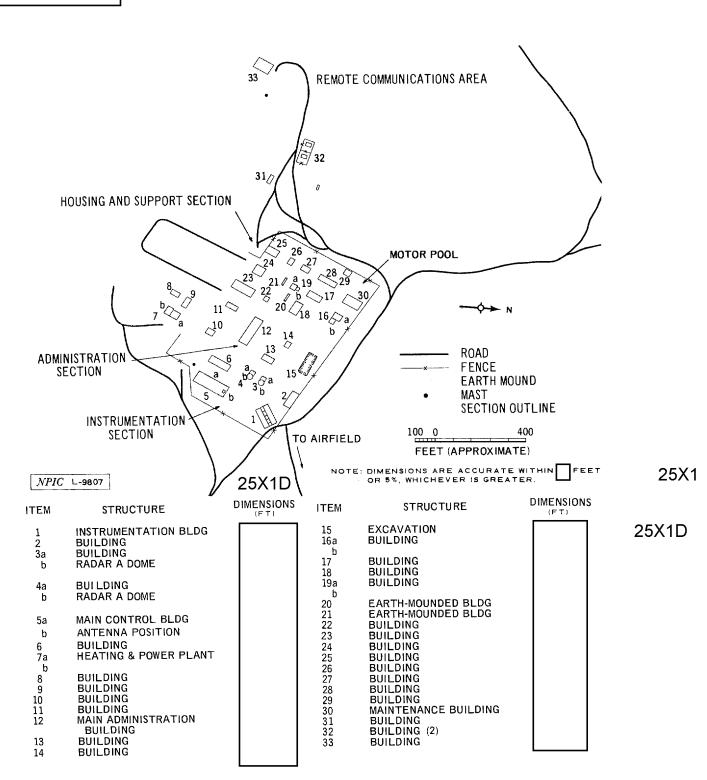


FIGURE 3. LAYOUT OF TRACKING FACILITY TT1.

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FIGURE 4. TRACKING FACILITY TT2.

available photography; however, 2 separate masts have been observed, 1 near the communications control building (item 33) and the other in the instrumentation section near item 5.

Other associated components of the facility include an unidentified area between the secured area and the remote communications area (item 31 and 32), a small-arms firing range and an athletic field on the south side of the facility, and a natural surface airfield near the east side of the facility.

TTMTC TRACKING FACILITY TT2

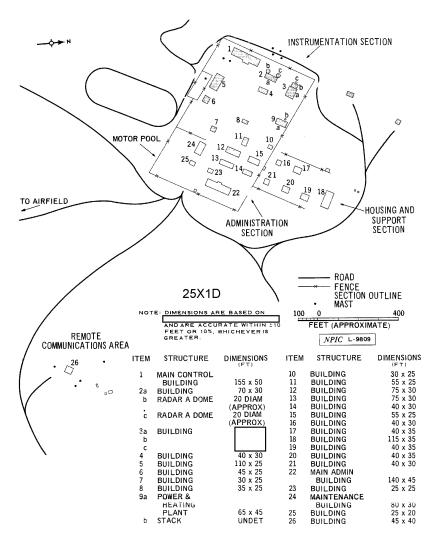
This facility is singly secured and consists of an instrumentation section, an administration section, a housing and support section, and a remote communications area approximately 1900 feet southeast of the center of the secured area (Figures 4 and 5). The item numbers of the components of the facility are keyed to Figure 5.

The instrumentation section consists of a

large main control building (item 1), and 2 Radar A environmental domes (items 2b and 2c) each positioned on top of its support structure. These domes are adjacent to the radar control building. Seven masts, 2 medium and 2 small support buildings are also within the instrumentation section. Photographic interpretability precludes identification of the configuration of the 7 masts.

Within the administration section and the housing and support section are a total of 25 buildings, including a main administration building (item 22) with 2 associated buildings; a separately secured motor pool which contains a maintenance building (item 24), 1 associated building, and numerous vans and vehicles; a heating and power plant (item 9a); and 19 buildings and structures of undetermined function. These buildings and structures probably serve the housing, support, storage, and maintenance functions of the facility. There is also possible pe-

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FIGURE 5. LAYOUT OF TRACKING FACILITY TT2.

troleum, oils, and lubricants (POL)storage area in the extreme southeast corner of the motor pool and a possible outdoor training/entertainment area is between item 12 and 13.

The remote communications area does not appear to be secured and consists of a main building (item 26) with at least 2 associated sheds or vans. Four masts have been identified in this area, but the complete antenna configuration cannot be identified on available photography. Other identified components of the facility include an athletic field outside the security fence on the southwest side of the facility; 2 buildings of unknown function to the north of the instrumentation section; and an airfield 0.5 nm south-southeast of the facility.

TTMTC TRACKING FACILITY TT3

The 4 principal divisions of this tracking facility (Figures 6 and 7) are an instrumentation section which includes a Type I interferometer, an administration section, a housing and support section, and a remote communications area which is approximately 1,900 feet north-northwest of the center of the securedarea. The item numbers of the components of the facility are keyed to Figure 7.

The instrumentation section contains 15 buildings, 1 earth-mounded building in the secured area (item 14), and 2 buried buildings, 1 in the center of the interferometer (item 44) and I near the interferometer circle (item 45). Functionally identified buildings in this section include 1 Radar A environmental dome approximately 20 feet in diameter with a small adjacent building (item 5), a flat-roofed main control building (item 3) which has a probable antenna position on its southwest end. This control building is connected by cable to the Radar A. To the west is a flat-roofed instrumentation building with 5 tracking, telemetry antenna positions in a line along its roof (item 10). The configuration of these antenna positions canno be identified on available photography. However, the orientation of this instrumentation building is such that the tracking/telemetry antennas on the roof do not obscure each other when acquiring missiles at low elevations. This building is also connected by cable to the buried building in the center of the interferometer (item 44) and possibly connected by cable to the nearest earth-mounded building in the instrumentation section (item 14). Another large building (item 15), south of the secured area, is connected by cable to the interferometer. It is not possible to determine from photography if the interferometer is in use, but the antennas pads are visible and the entire site does not appear to be in a state of neglect. There are 2 other areas which are probably occupied by instrumentation vans during a launch, 1 south-southwest of the control building (item 3) and the other east of the control building. These 2 areas are possibly connected by cable to various buildings in the instrumentation section.

The administration section and the housing and support section contain a total of 23 buildings and 2 earth-mounded buildings including a main administration building (item 28), a large maintenance building (item 35) with an associated building in the motor pool, and a heating and power plant (item 36). The other 21 structures, including the 2 earth-mounded buildings, probably serve the housing, storage, support, and maintenance functions of the facility.

The probable remote communications area contains a large control building (item 43) and 5 probable vans. No antennas have been identified on available photography; however, similarities between this area and the remote communications areas at the other Tyuratam tracking facilities indicate its probable function. Masts have also been identified in the instrumentation section near the main control building.

Other components associated with this facility are a small-arms firing range and an ath-

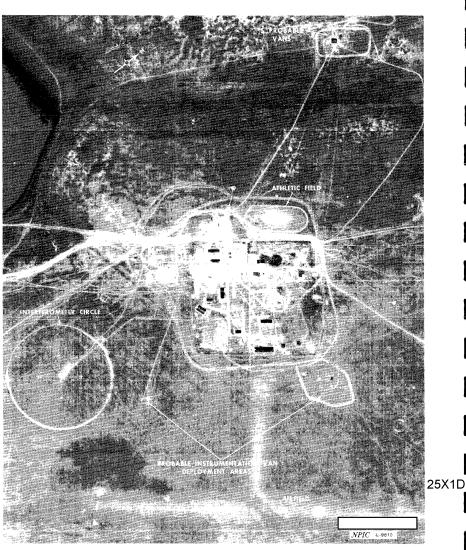
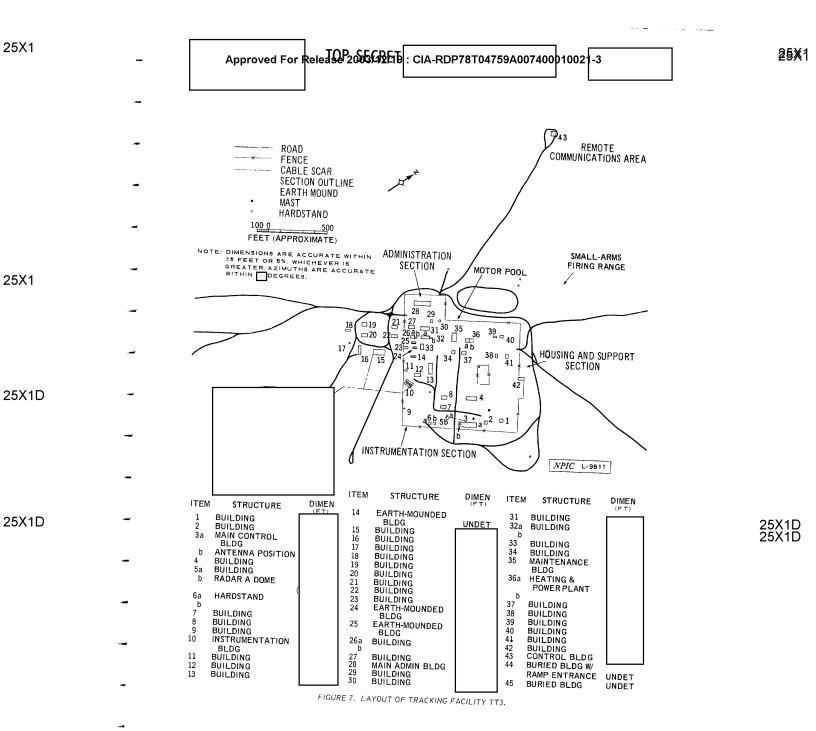


FIGURE 6. TRACKING FACILITY TT3.

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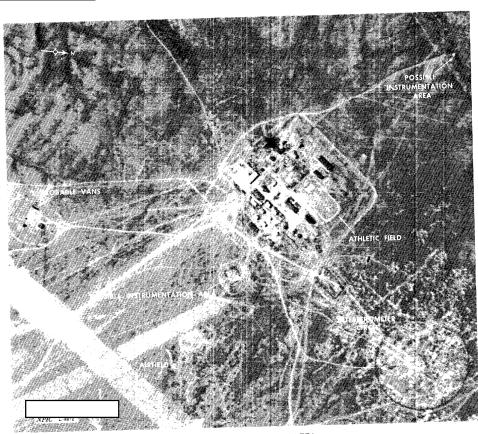


FIGURE 8. TRACKING FACILITY TT4.

letic field on the northwest side of the housing and support section, and an airfield 1,300 feet southeast of the instrumentation section. The airfield is connected to the instrumentation section by a taxi strip.

TTMTC TRACKING FACILITY TT4

This secured facility (Figures 8 and 9) consists of an instrumentation section which includes an interferometer 2,330 feet northeast of the main control building, an administration and support section, a separately secured housing section, and a secured remote communications area 2,940 feet south of the main control building. The item numbers of the components of the facility are keyed to Figure 9.

The instrumentation section contains 12 buildings and a buried building (item 31) at the center of the interferometer. Identified structures in this section include a flat-roofed main control building (item 2) with a probable antenna position on the southwest end of the roof, 1 Radar A environmental dome approximately 25 feet in

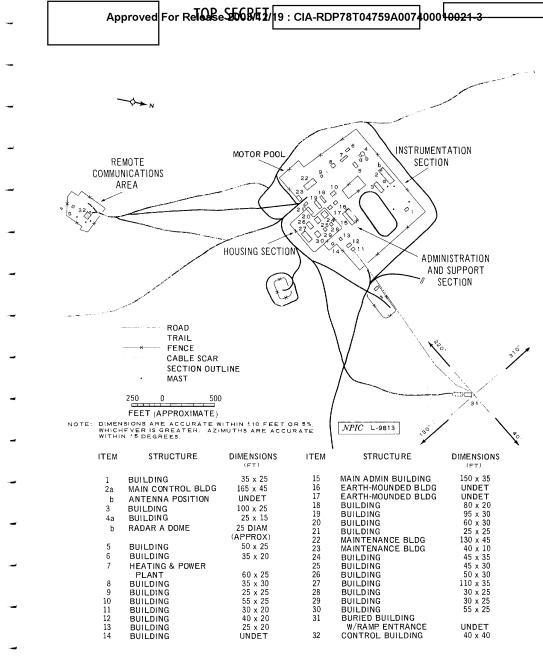


FIGURE 9. LAYOUT OF TRACKING FACILITY TT4.

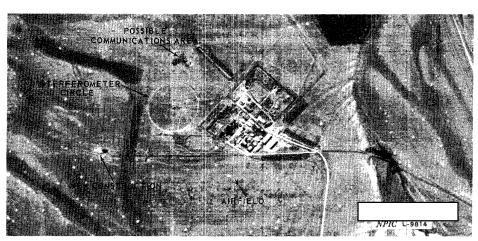


FIGURE 10. TRACKING FACILITY TT5.

diameter with a small adjoining building (item 4), and the buried control building at the center of the interferometer. This buried building is connected by cable to a building (item 11) in the instrumentation section. Identification of cable connections from this building to other structures in the facility is not possible on available photography. The operational status of the interferometer cannot be determined on available photog raphy. Its legs are indistinct and appear to be trenches. Some range communications equipment is apparent near the main control building including a horizontal dipole near item 1 with a feeder line connecting the dipole to the main control building (item 2). The dipole is positioned to send toward or receive from the rangehead. There are also 2 additional masts of unknown configuration near item 2. Two remote possible instrumentation areas, I northwest of the facility and the other southeast of the facility, were identified. Photography of poor interpretability prevents further intrepretation of these instrumentation areas.

The administration and support section, and the housing section contain a main administration building (item 15), 2 earth-mounded buildings of unknown function (items 16 and 17), a motor pool with a large maintenance building (item 22), a heating and power plant (item 7), and 13 other buildings which probably serve the support and housing functions of the facility.

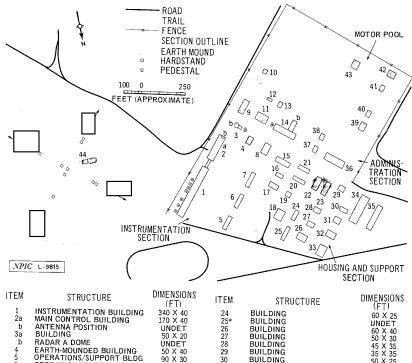
The remote communications area is fenced and contains a large control building (item 32), at least 2 associated structures, and 4 identifiable masts. Several probable vans are usually positioned on the west side of this secured area. The configuration and orientation of the antennas in this area are unknown.

Other asociated components of this facility include an athletic field in the instrumentation section, an airfield southeast of the housing section, and a secured area of unknown function to the northeast of the administration and support section, between the main secured area of the facility and the interferometer.

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3a	BUILDING	50 X 20	27	BUILDING	60 X 40
b	RADAR A DOME	UNDET	28	BUILDING	50 X 30
4	EARTH-MOUNDED BUILDING	50 X 40	29	BUILDING	45 X 35
5	OPERATIONS/SUPPORT BLDG	90 X 30	30	BUILDING	35 X 35
6	OPERATIONS/SUPPORT BLDG	90 X 30	31	BUILDING	50 X 25
7	OPERATIONS/SUPPORT BLDG	90 X 30	32	BUILDING	40 X 40 55 X 40
8	BUILDING	65 X 40	33	BUILDING	
9*	BUILDING	UNDET	34*	BARRACKS	65 X 50
10*	EARTH-MOUNDED BUILDING	UNDET	35*	BARRACKS	UNDET
11*	BUILDING	UNDET	36	MAIN ADMIN BUILDING	UNDET 130 X 40
12*	BUILDING	UNDET	37	BUILDING	
13	BUILDING	35 X 25	38	BUILDING	35 X 25
14a	BUILDING	135 X 35	39	BUILDING	35 X 25
b	•	115 X 35	40	BUILDING	40 X 35
15	BUILDING	90 X 25	41	BUILDING	35 X 25
16*	BUILDING	UNDET	42	BUILDING	35 X 25
17*	HEATING & POWER PLANT	60 X 25	43	BUILDING	45 X 35
18*	BUILDING	UNDET	44	BURIED INTERFEROMETER	45 X 35
19	BUILDING	30 X 30		CONTROL BUILDING	35 X 20
20	BUILDING	80 X 25	remmun-	TOWN TO BOILDING	33 X 20
Z 1 **	BUILDING	70 X 25	NOTE: 5		L J J . + 65.
22	EARTH-MOUNDED BUILDING	100 X 30			
23	EARTH-MOUNDED BUILDING	115 X 35	WITHIN	10 FEET OR 8% WHICHEVE	RISGREATER
			AZIMUTHS	ARE ACCURATE WITHIN	

FIGURE 1). LAYOUT OF TRACKING FACILITY TTS.

TTMTC TRACKING FACILITY TT5

This facility (Figures 10 and 11) consists of 4 divisions which are common to the other 5 tracking facilities at the Tyuratam MTC and include an instrumentation section, an administration section, a housing and support section, and a possible remote communications area. Because this tracking facility has only been covered by small-scale photography, positive identification of some buildings and areas was only possible by comparison to other Tyuratam tracking facilities. The item numbers of the components of the facility are keyed to Figure 11.

The instrumentation section contains 7 buildings and 2 earth-mounded buildings. Along instrumentation building (item 1) is in the extreme northeast corner of the secured area. This building is connected to the main control building (item 2) by a covered passage way. Seven probable occupied telemetry pedestals are in front of the instrumentation building. Due to the poor interpretability of available photography, it is not possible to determine configuration of antennas on the pedestals. However, these pedestals are similar to those at TTMTC Launch Complex A Tracking Facility which are mounted with various telemetry arrays. The main control building (item 2) has an antenna position on the southwest end of its roof. This position is occupied by an antenna of unknown configuration. A Radar A environmental dome (item 3) is southwest of the main control building, and is in the position similar to all Radar A domes in the other facilities covered in this report.

The operational support buildings (items 5, 6, and 7) are functionally associated with the main control and instrumentation buildings. Previous coverage of the facility showed that the main control building, its support building (item 7), the Radar A environmental dome, and 2 buildings of unidentified function (items 4 and 8) were completed before construction began on the instru-

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mentation building, the pedestal-mounted probable telemetry arrays or their associated support buildings (items 5 and 6).

The operational status of the interferometer cannot be determined on available photography. The buried control building at the center of the interferometer (item 44) and the antenna pads on the legs are visible, but electronic components cannot be identified on the available small-scale photography.

The administration section and the housing and support section contain a probable motor pool, a heating and power plant (item 17), a main administration building (item 36), 2 new, large probable barracks buildings (items 34 and 35), and 29 buildings of unknown function. These buildings probably serve the housing, support, storage, and maintenance functions of the facility.

Other areas include a possible remote communications area on the southeast side of the facility, just beyond the interferometer. The communications function of this area cannot be confirmed; however, its location is similar to the location of the remote communications area at the other 5 tracking facilities. A new area is under construction east of the facility. Its function cannot be identified at this early stage of construction. An athletic field and a natural surface landing field are also near the facility.

TTMTC TRACKING FACILITY TT6

This tracking facility (Figures 12 and 13) is secured and consists of 4 basic sections including an instrumentation section, an administration section, a housing and support section, and a probable communications section. There is also a remote communications area near the airfield. The item numbers of the components of the facility are keyed to Figure 13.

This instrumentation section contains 5 buildings and 1 earth-mounded building (item 7)

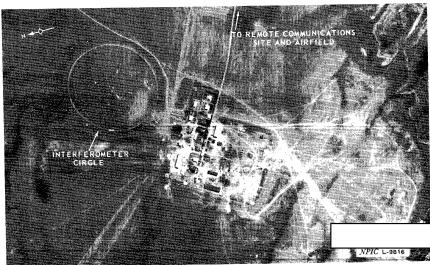


FIGURE 12. TRACKING FACILITY TT6.

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in the secured area and 1 buried building (item 31) and 1 possible buried building in the interferometer circle. The identifiable structures include a Radar A environmental dome approximately feet in diameter and its adjacent building (item 3), the main control building with an occupied probable antenna position on the northeast corner of its roof (item 1). This antenna appears to be a telemetry array. A possible additional position is on the front edge of the building's roof, approximately one-third of the way from its northeast end. Also identified are a concrete hardstand (item 4) and the buried interferometer control building (item 31) at the center of the interferometer. This building is connected by cable to the main control building and possibly connected by cable to the possible buried building in the southern portion of the interferometer. The interferometer is externally complete and has 4 antenna pads on each leg.

The administration section and the housing and support section contain a total of 19 buildings and 1 earth-mounded building including a main administration building (item 10), a heating and power plant (item 12), a motor pool with a large maintenance building (item 27), a probable POL storage area, and 16 other buildings which probably serve the housing, storage, support, and maintenance functions of the facility.

The on-site probable communications section consists of 2 buildings (items 29 and 30), and 6 vans/vehicles. There are at least 5 masts/antennas dispersed throughout the instrumentation section and the probable communications section. The antenna configuration and the total number of antennas cannot be determined on available photography.

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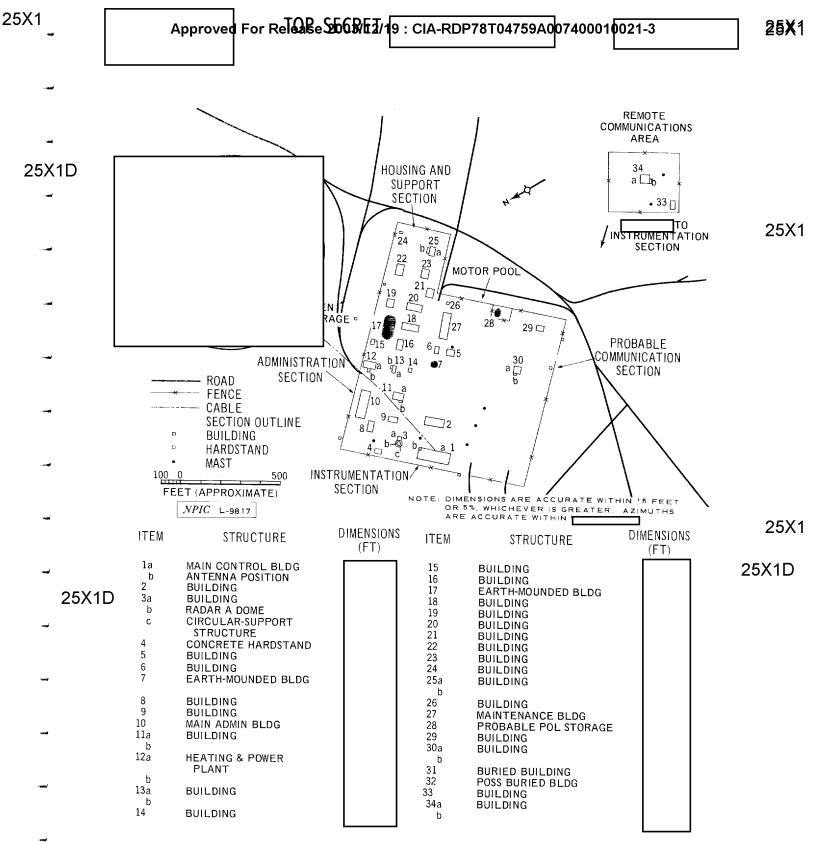


FIGURE 13. LAYOUT OF TRACKING FACILITY TT6.

The remote communications area, approxi-

mately 1 nm southeast of the instrumentation

section and near the airfield, contains 2 build-

ings (item 33 and 34) and 6 van/vehicles. One

probable horizontal dipole antenna which prob-

ably corresponds with the rangehead has been

identified on the west side of the larger building (item 34). A number of other suspect masts

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are in the secured area. Both of these buildings have probable outside stairways to the roofs. This fact and the presence of a number of undetermined objects on the roofs indicate the possibility of roof-mounted arrays of some type.

The airfield serving this facility and its support area is approximately 1.5 nm east-southeast of the main secured area.

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PHOTOGRAPHY

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